SELEZNEV, S.A.; IL'INSKIY, I.A.

Oxygen tension in the organs of cats during vivisection. Fiziol. zhur. 49 no.9:1106-1108 S '63. (MIRA 17:12)

1. Laboratoriya patofiziologii Nauchno-issledovatel'skogo instituta skoroy pomoshchi imeni I.I. Dzhanelidze, Leningrad.

SMEYANOV, S.A.; SMIRNOV, I.K.; IL'INSKIY, I.A.; KHRABROV, O.P.

Polyethylene vascular cannulas and their preparation. Fiziol. zhur. 50 no.5:643-644 My '64. (MIRA 18:2)

1. Laboratoriya patologicheskoy fiziologii Instituta skoroy pomoshchi imeni Dzhanelidze, Leningrad.

GOGLOZHA, R.I.; SELEZNEV, S.A.

Comparison of changes in carbohydrate metabolism and oxygen regimen of the liver in traumatic shock and stable hypotension. Biul. eksp. biol. i med. 59 no.4:33-38 Ap '65. (MIRA 18:5)

1. Laboratoriya patologicheskoy fiziologii (zav. S.A. Seleznev) Nauchno-issledovatel'skogo instituta skoroy pomoshchi imeni Dzhanelidze (dir. - prof. G.D. Shushkov), Leningrad.

SELEZNEV, S.A.

Venous potential difference as an indicator of the state of the portal blood flow in the liver during shock. Pat. fiziol. i eksp. terap. 8 no.6:25-27 N-D '64. (MIRA 18:6)

1. Laboratoriya patologicheskoy fiziologii (zav. - starshiy nauchnyy sotrudnik S.A. Seleznev) Nauchno-issledovatel'skiy instituta skoroy pomoshchi imeni Dzhanelidze (dir. - prof. G.D. Shushkov), Leningrad.

SELEZNEV, S.A.

Resistivity of coastal cartilages to impact load. Sud.-med. eksp. 8 no.3:27-29 Jl-S '65. (MIRA 18:9)

1. Kafedra normal'noy anatomii (zav.- doktor med. nauk A.S. Obysov) Gor'kovskogo meditsinskogo instituta imeni Kirova.

SELEZNEV, S.A.

Effect of noradrenaline on the blood flow in the liver and its oxygen regime in traumatic shock. Pat. fiziol. i eksp. terap. 9 no.3:20-24 My-Je '65. (MIRA 18:9)

1. Laboratoriya patologicheskoy fiziologii Nauchno-issledovatel'skogo instituta skoroy pomoshchi imeni Dzhanelidze, Leningrad.

SHIMKEV, S.A.

Quantitative evaluation of the hepatic blood flow in vivisection. Fiziol. zhur. 51 no.9:1[illegible] S '65. (MIRA 18:9)

1. Laboratoriya patologicheskoy fiziologii Nauchno-issledovatel'skogo instituta skoroy pomoshchi imeni I.I.Dzhanelidze, Leningrad.

SOROKIN, S.S.; SELEZNEV, S.I.; MERKULOV, M.A.; GALUZINSKIY, P.A.; KRIVOPALOV, V.I.; MAYATSKIY, I.G.; PARASHUTIN, N.V.; SUDARIKOV, V.R.; MERKULOV, M.A.; TARBEYEV, A.A.; IL'YUSHENKOVA, T.P., tekhn. red.

[Accounting in industrial enterprises] Bukhgalterskii uchet v promyshlennykh predpriiatiiakh. Pod red. S.S.Sorokina. 2., perer. izd. Moskva, Gosstatizdat, 1962. 333 p. (MIRA 16:3)

1. Russia (1923- U.S.S.R.) TSentral'noye statisticheskoye upravleniye. Upravleniye podgotovki kadrov schetnykh rabotnikov. 2. Upravleniye podgotovki kadrov schetnykh rabotnikov TSentral'nogo statisticheskogo upravleniya SSSR (for all except Il'yushenkova).

(Accounting)

SELEZNEV, Sergey Ivanovich; NOVIKOVA, S.N., red.

[Accounting in industry] Bukhgalterskii uchet v promyshlennosti. 3. perer. izd. Moskva, Statistika, 1965. 206 p. (MIRA 18:6)

SELEZNEV, S. M.

AID P - 2621

Subject : USSR/Meteorology

Card 1/2 Pub. 71-a - 24/26

Authors : Vitel's, L.A.; A.I. Sorokina and K. M. Sirotov; A.G. Bulavko; O.N. Mel'nichuk; B.S. Belov; S. M. Seleznev

Title : Scientific meetings and conferences

Periodical : Met i gidr, 4, 61-62, Jl/Ag 1955

Abstract : The article reports on different conferences of the Oceanographic Commission of the Geographic Society in Leningrad devoted to the new research on the Sun and its functions, and to the annual issue on hydro-meteorological observations of the sea. Another conference was held in Minsk where hydrological research problems were considered. A conference held in Chernovitsy discussed the problems of short-range forecasting. A conference of the Sverdlovsk Scientific Research Geophysical Observatory reported their findings on electricity in thunderclouds and on diurnal temperature changes.

NOTE: See card for VITEL'S, L. A. for page 2 of abstract.

SELEZNEV, S.M.

Tsunami warning service in Japan. Meteor.i gidrol. no.5:44-48 My '61. (MIRA 14:4)

(Japan--Tidal waves)

SELEZNEV, S.R. (Moskva)

Precision gyrocompass on a fixed foundation. Inzh.zhur. 3 no.4: 694-699 '63. (MIRA 16:12)

SELEZNEV, S.S., inzh.

Determining the critical metacentric heights assuring stability of ships subjected to wind. Sudostroenie 24 no.7:13-15 Jl '58. (MIRA 11:9)
(Stability of ships)

SELEZNEV, S.S., inzh.

Determining safety moments of a ship's weight in stability calculations. Sudostroenie 28 no.5:12-13 My '62. (MIRA 15:7)
(Stability of ships)

SELEZNEV, S.V., aspirant

Use of a.c. electric power systems of increased parameters on prospective ship types. Trudy LIVT no.71:31-38 '64. (MIRA 18:10)

SELEZNEV, V.; GEL'GAR, O.

Equipment for a wheel-changing unit. Avt.transp. 41 no.11:23-25 N '63. (MIRA 16:12)

1. Krymskiy oblastnoy avtomobil'nyy trest.

SELEZNEV, V.

"For Fuller Utilization of Possibilities in Oil Well Drilling" (Polneye ispol'zovat reservy bureniya neftyanykh skvazhin), Pravda, 3 March 55, page 2.

Summary D 222266, 6 May 55

SELEZNEV, V., kand.tekhn.nauk; [illegible] polkovnik

New products [illegible] Tyl i snab. Sov. Voor. Sil 21 no.4 [illegible] (MIRA 14:7)
(Food, Frozen)
(Milk, Fermented)

SELEZNEV, V.A., inzhener.

Drying and cleaning of transformer oil at assmebly sites. Elek. sta.27 no.12:44 D '56. (MIRA 10:1)
(Insulating oils)

L 51081-65 EWG(j)/FBD/FSS-2/EWG(r)/EWT(1)/FS(v)-3/EWG(v)/EWA(d)/EWG(a)-2/
EWG(c) Po-4/Pd-1/Pe-5/Pq-4/Pac-4/Pae-2/Pi-4 IT/DD/EWS/GW
ACCESSION NR: AP5012037 UR/0209/65/000/005/0084/0087

AUTHOR: Selezniev, V. (Engineer, Colonel, Professor, Doctor of technical sciences) 63 B

TITLE: A flight to a planet 18 47

SOURCE: Aviatsiya i kosmonavtika, no. 5, 1965, 84-87

TOPIC TAGS: planetary exploration, planetary orbit, planet, spacecraft, spaceflight

ABSTRACT: Man's recent walk in space and the ability to maneuver a space ship prove the possibility of flights to the planets. The first space ship will probably carry four men: a commander, a navigator, an electronics engineer, and a doctor. After launching, the ship will contact a cosmic station orbiting the earth. This station will be tubular and will contain hardware for a space rocket assembly and scientific -technical personnel. After the ship is readied, it will make a trial flight around the earth, then will start on its way to a planet. In addition to its crew it will also contain a small garden and some poultry for fresh vegetables, fruit, and meat. Controlling the space ship's plasma engines will be done either manually or by an autopilot. Navigation will be accomplished by observing various heavenly bodies and the speed will be measured by the Doppler effect. When the planet is approached the ship will be placed in an orbit. Then the rockets, formerly loosely attached and following the ship, will be properly secured and will be used in the

Card 1/2

L 51081-65

ACCESSION NR: AP5012037

soft landing.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: SV

NO REF SOV: 000 OTHER: 000

me

Card 2/2

IOFA[illegible]F.; VOLPYANSKIY, A.Ye.; MALITSEV, V.M.; LOGACHEV, V.S.; [illegible]ILEZNEV, V.A.

Sapphire light conductor for measurement of energy radiated from the flame torch zone toward the burning surface of a powder charge. Zhur. fiz. khim. 39 no.5:1281-1282 My '65. (MIRA 18:8)

1. Institut khimicheskoy fiziki AN SSSR.

L 16028-65 EPA/EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EPR Paa-4/Pr-4/Ps-4/Pt-10 ASD(f)-2/
SSD/AFWL/AEDC(b)/AS(mp)-2/AFMDC/AFETR/AFTC(p) WW/JW/JWD
ACCESSION NR: AP4049608 S/0076/64/038/011/2666/2668

AUTHOR: Mal'tsev, V. M.; Logachev, V. S.; Seleznev, V. A.

TITLE: Allowing for some optical properties of ballistic powder flames in temperature measurements

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 11, 1964, 2666-2668

TOPIC TAGS: explosive, combustion, flame temperature, temperature measurement, optical temperature measurement

ABSTRACT: The optical temperature measurement of the flame of ballistic powder has been studied in a constant pressure bomb by determining the emission spectrum (3800—7000 Å), the brightness temperature, and the reflection and absorption capacities of the flame. Sharply delineated spectral lines were observed at a pressure of 5 atm, but with increasing pressure (up to 80 atm) the spectrum tended to become continuous. The occurrence of a continuous spectrum at elevated pressures is explained by changes in the Boltzman energy distribution, the interaction of atoms and molecules causing a widening of energy bands, and the presence of soot particles. The experiments showed

Card 1/2

L 16028-65
ACCESSION NR: AP4049608

that the absorption decreased with increasing wavelength and increased with increasing pressure. The reflection increased by about 7—10% with increasing pressure. The true temperature of the flame at 40 atm was calculated as 2350C from the brightness temperature and the absorption and reflection capacities. Temperatures close to this value were also obtained by using different spectral regions. It is concluded that optical methods may be used for temperature measurements of powder flames at elevated pressure. Orig. art. has: 1 figure and 2 formulas.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AN SSSR)

SUBMITTED: 20Jun63 ENCL: 00 SUB CODE: WA, OP

NO REF SOV: 002 OTHER: 000 ATD PRESS: 3141

Card 2/2

ACC NR: AP7002428 SOURCE CODE: UR/0051/66/021/006/0780/0781

AUTHOR: Mustafin, K. S.; Seleznev, V. A.; Shtyrkov, Ye. I.

ORG: none

TITLE: Stimulated emission in the negative region of a glow discharge

SOURCE: Optika i spektroskopiya, v. 21, no. 6, 1966, 780-781

TOPIC TAGS: gas laser, laser emission, laser modulation, glow discharge

ABSTRACT: To check on the possibility of using the cathode region of a glow discharge to produce level population inversion, the authors assembled a laser using a resonator with a semiconfocal Fabry-Perot resonator. The discharge was produced in a quartz tube having Brewster-angle windows. When the He-Ne mixture was excited with dc at a density of (6—10) x 10^{-3} a/cm^2, lasing occurred at the 1.15 μ wavelength, the laser beam having the form of a strip 16 mm high and 2—3 mm wide. The lasing region was located 3—5 mm from the cathode and coincides with the cathode glow region. This is confirmed by the measured distribution of the intensity of the stimulated emission (1.15 μ) and the spontaneous emission (0.587 and 0.692 μ) over the interelectrode gap. Variation of the pressure led to a shift of the lasing region, which became particularly noticeable at pressures lower than 10 mm Hg. Lasing action was observed in a wide range of pressures, 5—20 mm Hg, with maximum power (7 mW) obtained at an optimum pressure of 11—12 mm Hg. An important feature of the results is that the

 UDC: 621.375.9: 535 + 621.384.52

ACC NR: AP7002428

optimal neon/helium ratio (0.02) corresponds to the maximum normal cathode potential drop in the discharge. The output power is proportional to the discharge current. This proportionality can be used to produce deep internal modulation of the laser emission. Larger current densities can be obtained by cooling the cathode. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 28May66/ ORIG REF: 001/ OTH REF: 004
ATD PRESS: 5113

Card 2/2

L 36301-65 EWT(d)/EWT(1)/EPF(c)/EPF(n)-2/EWA(d)/EWP(v)/EWP(k)/EWP(h)/EWP(1) 42
Pf-4/Pr-4/Pu-4 IJP(c) WW

ACCESSION NR: AP5008920 S/0076/65/039/003/0788/0789 41 B

AUTHOR: Pokhil, P. F. (Moscow); Mal'tsev, V. M. (Moscow); Seleznev, V. A. (Moscow)

TITLE: Temperature nonuniformities in the flame of condensed systems

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 3, 1965, 788-789

TOPIC TAGS: temperature measurement, spectral brightness method, flame temperature, gun powder

ABSTRACT: A spectral brightness method is described for measuring temperature nonuniformity in the flame of condensed systems (gun powder) in the temperature range of 1300—3600K. The proposed method is based on the measurement of the absorption of light by the flame in a special apparatus. The apparatus (see Fig. 1 of the Enclosure) consists of a high-pressure (150 atm) bomb, 1; a motion picture camera, 2; a tungsten-band lamp for calibrating the optical system, 3; optical obturators, 4 and 5; a xenon lamp, 6; a spectrograph, 7; a photoelectric unit, 8; an electronic unit, 9; and an oscillograph, 10. Experiments with the gun powder flame showed that along the flame cross section the temperature is constant. The frequency of the flame temperature nonuniformity determined for the ballistic powder under certain conditions by this method was about 30 msec. The amplitude

Card 1/3

L 36301-65

ACCESSION NR: AP5008920

of the temperature nonuniformity along the height of the flame decreased as it neared the maximum temperature zone. The temperature nonuniformities may be caused by physical and chemical nonuniformities of the fuel, by large particles entering the flame from the three-phase dispersed system (solid-liquid-gas) formed on the charge surface, and by turbulence in the flow. Orig. art. has: 1 figure. [PS]

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Institute of Chemical Physics, Academy of Sciences, SSSR)

SUBMITTED: 23Jul63 ENCL: 01 SUB CODE: FP

NO REF SOV: 003 OTHER: 000 ATD PRESS: 3220

Card 2/3

L 36301-65

ACCESSION NR: AP5008920 ENCLOSURE: 01

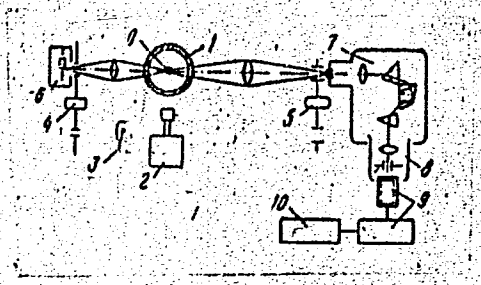

Fig. 1 Diagram of apparatus for measuring temperature nonuniformity in the flame

Card 3/3

SELEZNEV, V. D.

95

S/089/62/013/006/019/027
B102/B186

AUTHORS: G. T. and M. R.

TITLE: Nauchnaya konferentsiya Moskovskogo inzhenerno-fizicheskogo instituta (Scientific Conference of the Moscow Engineering Physics Institute) 1962

PERIODICAL: Atomnaya energiya, v. 13, no. 6, 1962, 603 - 606

TEXT: The annual conference took place in May 1962 with more than 400 delegates participating. A review is given of these lectures that are assumed to be of interest for the readers of Atomnaya energiya. They are following: A. I. Leypunskiy, future of fast reactors; A. A. Vasil'yev, design of accelerators for superhigh energies; I. Ya. Pomeranchuk, analyticity, unitarity, and asymptotic behavior of strong interactions at high energies; A. B. Migdal, phenomenological theory for the many-body problem; Yu. D. Fiveyskiy, deceleration of medium-energy antiprotons in matter; Yu. M. Kogan, Ys. A. Iosilevskiy, theory of the Mössbauer effect; M. I. Ryazanov, theory of ionization losses in nonhomogeneous medium; Yu. B. Ivanov, A. A. Rukhadze, h-f conductivity of suboritical plasma;

Card 1/4

35

Nauchnaya konferentsiya...

S/089/62/013/006/019/027
B102/B186

design of 30-Mev electron linear accelerator; Ye. G. Pyatnov, A. A. Glazkov, V. G. Lopato, A. I. Finogenov, G. N. Skepskiy, V. D. Seleznev, experimental characteristics of low-energy electron linear accelerators; G. A. Zeytlenk, V. M. Levin, S. I. Piskunov, V. L. Smirnov, V. K. Khokhlov, radiocircuit parameters of ЛУЭ (LUE)-type accelerators; G. A. Tyagunov, O. A. Val'dner, B. M. Gokhberg, S. I. Korshunov, V. I. Kotov, Ye. M. Moroz, accelerator classification and terminology; O. S. Milovanov, V. B. Varaksin, P. R. Zenkevich, theoretical analysis of magnetron operation; A. G. Tragov, P. R. Zenkevich, calculation of attenuation in a diaphragmated waveguide; Yu. P. Lazarenko, A. V. Ryabtsev, optimum attenuation length for linear accelerator; A. A. Zhigarev, R. Ye. Yeliseyev, review on trajectographs; I. G. Morozova, G. A. Tyagunov, review on more than 500 ion sources; M. A. Abroyan, V. L. Komarov, duoplasmatron-type source; V. S. Kuznetsov, A. I. Solnyshkov, calculation and production of intense ion beams; V. M. Rybin (Ye. V. Armenskiy), inductive current transmitters of high sensitivity; V. I. Koroza, G. A. Tyagunov, kinetic description of linear acceleration of relativistic electrons; A. D. Vlasov, phase oscillations in linear accelerators; E. L. Burshteyn, G. V. Voskresenskiy, beam field effects in the waveguide of an electron linear accelerator; R. S. Bobovikov,

Card 3/4

ACCESSION NR: AT4019725 S/2759/63/000/005/0096/0107

AUTHOR: Val'dner, O. A.; Glazkov, A. A.; Pyatnov, Ye. G.; Seleznev, V. D.

TITLE: Experimental study of the Y-10 linear accelerator. 1. Preparation for operation and measurement techniques

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli (Accelerators), no. 5, 1963, 96-107

TOPIC TAGS: accelerator, linear accelerator, beam stability, reliability

ABSTRACT: The aim of the paper is to make a detailed test of the type Y-10 linear accelerator in the following respects: 1) correspondence between the obtained beam parameters and the calculated data, and the verification of the assumptions made in the design; 2) determination of operational characteristics of the accelerator which are important in estimating the stability of its operation and which describe the beam reaction to variations in the feed conditions; 3) verification of the operational reliability of the accelerator for a long duty-cycle. Orig. art. has: 7 figures and 10 equations.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Engineering-Physics Institute)

Card 1/2

ACCESSION NR: AT4019726 S/2759/63/000/005/0108/0124

AUTHOR: Val'dner, O. A.; Glazkov, A. A.; Pyatnov, Ya. G.; Seleznev, V. D.

TITLE: Experimental study of the Y-10 linear accelerator

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoritoli (Accelerators), no. 5, 1963, 108-124

TOPIC TAGS: accelerator, linear accelerator, particle accelerator, electron accelerator, linear electron accelerator

ABSTRACT: The first part of this paper appears as the preceding paper in the same issue. This second part describes the energy spectra of the particles, the frequency characteristics, the power and current characteristics, and the beam-power and high-frequency efficiency. Orig. art. has: 12 figures and 5 formulas.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Engineering-Physics Institute)

SUBMITTED: 00 DATE ACQ: 19Mar64 ENCL: 00

SUB CODE: NP NO REF SOV: 003 OTHER: 001

Card 1/1

L 43801-66 EWT(1)/EWT(m) IJP(c)
ACC NR: AT6017506 (N) SOURCE CODE: UR/2759/65/000/007/0039/0047

AUTHOR: Val'dner, O. A. (Candidate of technical sciences); Seleznev, V. D. 56

ORG: none B+1

TITLE: RF power supply for linear accelerators

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli, no. 7, 1965, 39-47

TOPIC TAGS: linear accelerator, waveguide, magnetron, klystron, RF power generator

ABSTRACT: A compromise is sought to achieve the most efficient design for the radio frequency power supply for a linear accelerator. The discussion is based upon the fact that the shunt impedance of a diaphragm waveguide varies proportional to $1/\lambda^{1/2}$. On the other hand, the RF power which can be achieved with present generators may be considered as directly proportional to wavelength. The present state of high frequency power generators leads to the choice of the 10-20 cm (1500-3000 Mhz band). The power attained in this band is of the order of 10 Mw and, in some new generators, up to 100 Mw and more. A graph comparing magnetrons and klystrons is shown. The authors conclude that $a/\lambda=0.22$ represents the optimum choice for the most efficient operation. Orig. art. has: 5 figures, 15 formulas.

SUB CODE: 20/09/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001

Card 1/1

L 06535-67 EWT(m) IJP(c)

ACC NR: AT6017507 (N) SOURCE CODE: UR/2759/65/000/007/0048/0053

AUTHOR: Komanov, V. V.; Seleznev, V. D.

ORG: none

28
B+1

TITLE: Design of a vacuum system for a linear accelerator 19

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli, no. 7, 1965, 48-53

TOPIC TAGS: particle accelerator component, linear accelerator, high vacuum technique

ABSTRACT: The basic equations used in the design of the vacuum system for a linear waveguide accelerator are reviewed. Special attention is paid to the case when the waveguide itself is not vacuum tight but is placed in an external vacuum vessel. Expressions are given for the necessary pumping rate under various conditions. Orig. art. has: 2 figures, 15 formulas.

SUB CODE: 20,18/ SUBM DATE: none/ ORIG REF: 002

Card 1/1 efr

GOLOVIN, G.M., zasluzhennyy agronom RSFSR, red.; KISELEV, I.Ya., red.; SELEZNEV, V.I., red.; PASKIN, I., red.; POPOVA, M., tekhn.red.

[Advanced practices of growing corn in Mordovia] Peredovoi opyt vozdelyvaniia kukuruzy v Mordovii; sbornik statei. Saransk, Mordovskoe knizhnoe izd-vo, 1960. 134 p. (MIRA 14:3)

1. Direktor Mordovskoy sel'skokhozyaystvennoy opytnoy stantsii (for Golovin).

(Mordovia--Corn (Maize))

SELEZNEV, V.I., agronom

Fertilizers are an important means of increasing sugar beet yields. Uch zap. Mord. gos. un. no.13:76-91 '60. (MIRA 15:11)

1. Kafedra agronomii i pochvovedeniya Mordovskogo gosudarstvennogo universiteta.
(Sugar beets—Fertilizers and manures)

USSR / Electronics H

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9768

Author : Bol'shov, V.G., Seleznev, V.K.
Inst : Not given
Title : Secondary Electron Emission of Copper, Germanium, and Tin in Solid and Liquid States

Orig Pub : Zh. tekh. fiziki, 1956, 26, No 8, 1657-1664

Abstract : An investigation was made of the temperature dependence of the coefficient of secondary electron emission σ for copper, germanium, and tin and of the energy distribution of the secondary electrons for tin. It was found that σ depends little on the temperature. During melting, σ changes abruptly. The study of the distribution of the secondary electrons by energies for tin has shown that the growth of σ for tin in the transition to the liquid state is due fundamentally to the increase in the yield of the truly secondary electrons. Bibliography, 14 titles.

Card : 1/1

SOV/137-58-9-19721

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 228 (USSR)

AUTHOR: Seleznev, V.K.

TITLE: Secondary Electron Emission of Tin in the Solid and Liquid States (Vtorichnaya elektronnaya emissiya olova v tverdom i zhidkom sostoyaniyakh)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1958, Nr 194, pp 154-165

ABSTRACT: The coefficient of the secondary electron emission σ of Sn (99.99%) in the 30-1500 ev range of energies of primary electrons E_p was measured at various temperatures. After the glass and the machine parts were degasified, the vacuum in the installation, with the target heated, was $5 \cdot 10^{-8}$ mm Hg. Throughout the investigated E_p range the variations of σ in the melting point were all of the same sign. The maximum value of σ for solid and liquid Sn at temperatures close to the melting point was equal to 1.23+ 0.01 (E_p ~ 500 ev) and 1.42+0.01 (E_p ~ 500 ev) respectively. The σ of solid Sn is practically unchanged by an increase in temperature. In the liquid state (up to 600°C) a considerable decrease of was observed.

Card 1/2

SOV/137-58-9-19721

Secondary Electron Emission of Tin in the Solid and Liquid States

The character of the distribution of secondary electrons according to energies did not change upon the passing from one aggregate state into the other. Supplementary maximums (more distinct for liquid Sn) were discovered on the distribution curves near the peak of the elastically reflected electrons. Their position relative to the peak indicated did not vary with the variation of E_p in a broad range. It is remarked that a different change in sign for σ was observed during the passage through the melting point in experiments with insufficiently pure Sn at various E_p.

I.D.

1. Tin--Phase studies 2. Secondary emission

Card 2/2

BALANIN, V.V., kandidat tekhnicheskikh nauk; SELEZNEV, V.M., inzhener.

Hydraulic phenomena of flow around a half dam in a stream. Rech. transp.15 no.11:14-17 N '56. (MLRA 10:2)
(Fluid dynamics)

SOV/124

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 62 (USSR)

AUTHOR: Seleznev, V. M.

TITLE: An Investigation of the Kinematics of a Flow in the Divergent Section Downstream of an Underwater Shore-protection Pier (Issledovaniye kinematiki potoka na uchastke rasshireniya za poluzaprudoy)

PERIODICAL: Tr. Leningr. in-ta inzh. vodn. transp., 1957, Nr 24, pp 42-52

ABSTRACT: The structure of the flow downstream of an underwater shore-protection pier is investigated experimentally. For different ratios of the pier height to the flow depth the boundary is determined of the still-water (i.e., reverse-flow) region that forms downstream of the pier. The author's measurements of the boundaries of the still-water region are compared with calculations made in accordance with the theory of I. M. Konovalov [Turbulentnyye strui (Turbulent Jets). Tr. Akad. rechn. transp., 1952, Nr 1]. It is shown that in order to make the velocity fields measured by the author to agree with those of the calculations it is necessary to introduce an empirical correction, which

Card 1/2

SOV/124-58-8-8769

An Investigation of the Kinematics of a Flow (cont.)

involves multiplying coefficient a of the Konovalov formula approximately by two. The disparity between the calculated length of the still-water region and the measured length increases concurrently with a decrease in the height of the pier, attaining 35% by the time the pier equals 0.2 of the flow depth. A qualitative study made of the river-bed formation process reveals a close relationship between the shape of a river bed and the structure of the flow within it. In particular, the fact is confirmed of the existence of a relationship between the appearance of points of separation of the boundary layer and the formation of sand bars. Bibliography: 7 references.

Ye.M. Minskiy

Card 2/2

56-5-47/55

AUTHOR: NIKOL'SKIY, S.I., SELEZNEV, V.M.

TITLE: The Spatial Distribution of Electron- Photon-Components on the Periphery of Broad Atmospheric Cosmic Showers. (Raspredeleniye elektronno-fotonnoy komponenty na periferii shirokikh atmosfernykh livney kosmicheskogo izlucheniya, Russian)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 5, pp 1250 - 1252 (U.S.S.R.)

ABSTRACT: A large number of counting tubes which were established at different distances from one another (of up to 1000 m) in an altitude of 3860 m, were used to measure the current density of all charged particles of the shower. The counters were screened by means of a thin Al-foil and by wood.

From the formula $\rho(r) = \frac{1}{\sigma} \ln \frac{n}{m-n}$ the current density of the particles at the distance r from the axis of the shower can be computed, where n denotes the number of counting tubes which had responded, m- the total number of counting tubes, and σ the surface of a counting tube. Three groups of broad showers with accurately determinable axis were investigated. The first group comprised such showers as contained from 5.10^4 to 1.10^5 charged particles. The energy of the primary particles causing these showers can be assumed to be $1,6.10^{14}$ eV. For the 2nd and 3rd group the corresponding figures are:

Card 1/2

56-5-47/55

The Spatial Distribution of Electron- Photon-Components on the Periphery of Broad Atmospheric Cosmic Showers.

$1,5.10^5 - 2,6.10^5$, $E_o \neq 5.10^{14}$ eV, and $5.10^5 - 13.10^5$.
$E_o = 16.10^{14}$ eV.

For these 3 groups the spatial distribution of all charged particles can be judged according to curves. Herefrom the spatial distribution of the electron-photon component of the shower can be derived first for distances from the axis of the shower of ~ 100 m. For greater distances (of up to 1000 m) the share taken by μ-mesons in the total current of charged particles must be taken into account, which was done.

ASSOCIATION: Physical Institute "P.N.LEBEDEV" of the Academy of Sciences of the U.S.S.R.
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

SOV/124-58-8-8804 D

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 67 (USSR)

AUTHOR: Seleznev, V.M.

TITLE: An Investigation of the Kinematics of the Flow in the Vicinity of Shore-protection Jetties (Issledovaniye kinematiki potoka v rayone poluzaprud)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of Technical Sciences, presented to the Leningr. in-t inzh. vodn. transp. (Leningrad Institute of Water Transport Engineers), Leningrad, 1958

ASSOCIATION: Leningr. in-t inzh. vodn. transp. (Leningrad Institute of Water Transport Engineers), Leningrad

Card 1/1

BALANIN, V.V., kand. tekhn. nauk; SELEZNEV, V.M., inzh.

Investigation the effect of spaces between dikes on the over-all condition of straightened sections of rivers. Rech. transp. 17 no. 6:31-34 Je '58. (MIRA 11:7)

(Rivers)
(Hydraulic engineering)

BALANIN, V.V., kand.tekhn.nauk, dotsent; SELEZNEV, V.M., inzh.

Calculating the field of speeds beyond a semi-dike. Trudy LIIVT no.26:42-53 '59. (MIRA 14:9)

(Hydrodynamics) (Jetties)

BALANIN, V.V., kand.tekhn.nauk, dotsent; SELEZNEV, V.M., kand.tekhn.nauk

Hydraulic conditions in areas of flow hindering structures. Trudy LIVT no.7:5-16 '60. (MIRA 15:2)
(Hydraulic structures) (Stream measurements)

S/194/62/000/004/016/105
D222/D309

AUTHOR: Seleznev, V. M.

TITLE: Semi-automatic computer for the processing of oscillograms

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 4, 1962, abstract 4-2-17sh (V sb. Novye metody izmereniy i probory dlya gidravlich. issled., M., AN SSSR, 1961, 153-155)

TEXT: An electromechanical device for the processing of oceanological observations, based on principles of discrete action, is described. During the processing the calculation of the total area bounded by a given function is replaced by the calculation of the sum of rectangular areas, the base of which is equal to an interval which is constant for a given instrument, while the height is the ordinate of a line specified in advance. The intervals into which the abscissa axis is divided, and the number of groups of areas are selected in accordance with the given accuracy of the device

Card 1/2

S/194/62/000/004/016/105
D222/D309

Semic-automatic computer ...

and the purpose for which it is used. The integration of groups of areas is done manually by following a curve while the tape on which the oscillogram is recorded is moved by a tape transport mechanism. A special unit is used for summing the ordinates of the curve at any points on the ascissa axis. It is shown that the calculation of the area by this device is in agreement with the results of theoretical calculations. The circuit of the semi-automatic integrator is described, and the curve of a pressure wave is given, together with the scheme of calculating the area of this curve. 2 figures. [Abstracter's note: Complete translation.]

Card 2/2

KONOVALOV, F.P., kand.tekhn.nauk; SELEZNEV, V.M., kand.tekhn.nauk

Hydraulic turbulence stimulator for pulp pipelines. Trudy LIVT no.11:13-17 '61. (MIRA 14:9)
(Hydraulic conveying) (Dredging machinery)

CHEKRENEV, A.I., doktor tekhn. nauk, prof.; ILINSKIY, V.A., dots. [deceased]; GRISHANIN, K.V., kand. tekhn. nauk, dots.; SELEZNEV, V.M., kand. tekhn.nauk; GILYAROV, N.P., dots., kand. tekhn. nauk; KOSTENKO, N.M., inzh.; Prinimali uchastiye: GRIGOR'YEV, S.N., inzh.; TEREKHOV, I.B., inzh.; KHIZHOV, B.M., inzh., red.; VOLCHOK, K.M., tekhn. red.

[Practical manual on channel improvement operations in inland waterways]Prakticheskoe posobie po proizvodstvu vypravitel'nykh rabot na vnutrennikh vodnykh putiakh. Leningrad, Izd-vo "Rechnoi transport," 1961. 275 p. (MIRA 16:2)

1. Russia (1917- R.S.F.S.R.)Glavnoye upravleniye vodnykh putey i gidrotekhnicheskikh sooruzheniy.
(Rivers--Regulation)

KONOVALOV, I.M., doktor tekhn.nauk, prof.; BALANIN, V.V., kand.tekhn.nauk; SELEZNEV, V.M., kand.tekhn.nauk

Plotting the field of speeds in the region of a submerged hydraulic jump. Gidr.stroi. 32 no.7:40-43 Jl '62. (MIRA 15:7)
(Hydraulics)

(M)

SELEZNEV, V., kand. tekhn. nauk; ZUBKOV, N., inzh.

System of sandbanks located in the estuaries of river tributaries. Rech. transp. 22 no.4:42-43 Ap '63. (MIRA 16:4)

(Sandbars)

ACC NR: AP6033833 SOURCE CODE: UR/0139/66/000/005/0013/0018

AUTHOR: Stel'mashenko, M. A.; Seleznev, V. N.

ORG: Siberian Physicotechnical Institute im. V. D. Kuznetsov (Sibirskiy fiziko-tekhnicheskiy institut im. V. D. Kuznetsova)

TITLE: Temperature dependence of constants of magnetic crystallographic anisotropy of single crystals of lithium and lithium cobalt ferrites

SOURCE: IVUZ. Fizika, no. 5, 1966, 13-18

TOPIC TAGS: temperature dependence, magnetic anisotropy, single crystal, lithium, cobalt ferrite, anisotropy, anisotropy constant

ABSTRACT: Results are presented for measuring the first and second constants of the magnetic anisotropy of single crystals of lithium ferrites, as well as the first constant of magnetic anisotropy and the constant of induced uniaxial anisotropy of single crystals of lithium-cobalt ferrites. Measurements were carried out by ferromagnetic resonance at a frequency of 9375 Mc. On the basis of the single-ion theory, an explanation is given of the temperature dependence of

Card 1/2

ACC NR: AP6033833

the first constant of magnetic anisotropy of single crystals of lithium-cobalt ferrites. The authors thank S. M. Zhilyakov and A. N. Yelsukov for their assistance in the static measurements of the anisotropic constants, and G. Ye. Pashneva for the chemical analysis of the ferrites tested. Orig. art. has: 5 figures and 5 formulas. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 05Jan65/ ORIG REF: 003/ OTH REF: 006/

Card 2/2

L 5[illegible]98-65 EED-2/EPF(n)-2/EWT(1)/EWT(m)/EWA(c)/EWP(b)/T/EWP(t) Pu-4/Pad IJP(c)

ACCESSION NR: AP5011391 JD/HW/JG UR/0139/65/000/002/0167/0168

AUTHOR: Selezhev, V. N.

TITLE: Temperature dependence of the parameters of ferromagnetic resonance in single crystals of lithium and lithium-cobalt ferrites

SOURCE: IVUZ. Fizika, no. 2, 1965, 167-168

TOPIC TAGS: ferromagnetic resonance, single crystal, lithium ferrite, lithium cobalt ferrite, anisotropy constant, g factor, temperature dependence

ABSTRACT: In view of the lack of sufficient data for lithium ferrite in the literature, especially for high temperatures (above room temperature), the authors have grown single crystal lithium and lithium-cobalt ferrites and measured the temperature dependence of the paramagnetic resonance absorption line width (ΔH), the first and second constants of magnetic crystallographic anisotropy (K_1, K_2), and the g-factor in the temperature range from - 150 to 400C. The single crystals were grown by a technology analogous to that described by the

Card 1/2

L 59498-65

ACCESSION NR: AP5011391

authors elsewhere (Voprosy radioelektroniki ser. III No. 9, 1962). The temperature dependence of ΔH was measured at 9,370 Mcs by the method of short-circuited waveguide section. The values of K_1, K_2 and the g factor were determined from resonant measurements using formulas given by N. Bloembergen (Proc. IRE v. 44, 1259, 1956). In the case of lithium ferrite, the results are similar to those obtained by Bloembergen for single-crystal nickel ferrite rich in iron. In the case of lithium-cobalt ferrite the anisotropy constant reverse sign (from negative to positive) at 100C. It is also noted that lithium-cobalt single crystals are easily susceptible to thermal magnetic working. Original article has: 2 figures

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut imeni V. Kuznetsova (Siberian Physicotechnical Institute)

SUBMITTED: 29Dec63 ENCL: 00 SUB CODE: SS

NR REF. SOV: 001 OTHER: 010

Card 2/2

SELEZNEV, V.P.

From the materials of studies on the growth of aspen in the zone of the influence of Rybinsk Reservoir. Trudy DGZ no.7:119-127 '61. (MIRA 16:2)
(Rybinsk Reservoir region--Aspen)
(Growth (Plants))

SEIEZNEV, V. P.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 325 - I

BOOK Call No.: AF 608961

Author: FRIDLENDER, G. O. AND SEIEZNEV, V. P.

Full Title: FLIGHT MANOMETRIC INSTRUMENTS, COMPASSES AND AUTOMATIC NAVIGATORS

Transliterated Title: Pilotashnyye manometricheskiye pribory, kompasy i avtoshturmany

Publishing Data

Originating Agency: None

Publishing House: State Publishing House of the Defense Industry (Oborongiz)

Date: 1953 No. pp.: 367 No. of copies: Not given

Editorial Staff

Editor: None Tech. Ed.: None

Editor-in-Chief: None Appraiser: None

Others: Gratitude for valuable assistance expressed to Kozlov, A. S., Bodner, V. A., Krasovskiy, A. A., Chistyakov, N. I., and Barsukov, M. L.

Text Data

Coverage: This is a textbook. The author explains the theoretical basis of each group of instruments, and shows their principal mechanisms. He mentions frequently the trademarks of

1/2

Pilotazhnyye manometricheskiye pribory, kompasy i avtoshturmany

AID 325 - I

Russian-built instruments. Numerous diagrams, graphs, photos, tables, etc.

This is a very good, up-to-date textbook. However the instruments described are very similar to those built in the USA, and nothing new in their theory and construction has been noticed.

2/2

TIKHMENEV, Sergey Sergeyevich; FRIDLENDER, G.O., professor, doktor tekhnicheskikh nauk, retsenzent; SELEZNEV, V.P., dotsent, kandidat tekhnicheskikh nauk, retsenzent; MATVEYEV, N.K., inzhener retsenzent; GUROV, S.Z., redaktor; LOSEVA, G.F., izdatel'skiy redaktor; ANTONYUK, P.D., tekhnicheskiy redaktor

[Elements of precision instruments; a computation and construction manual] Elementy tochnykh priborov; rukovodstvo po raschetu i konstruirovaniiu. Moskva, Gos.izd-vo obor. promyshl., 1956. 360 p. (Instruments)

SELEZNEV, V.P.

PETROV, Viktor Pavlovich; SELEZNEV, V.P., dots., kand. tekhn.nauk, inzhener-popdpolkovnik, red.; KADER, Ya.M., red. izd-va; MEZHERITSKAYA, N.P., tekhn.red.

[Artificial earth satellites] Iskusstvennyi sputnik zemli. Moskva, Voen. izd-vo M-va obor. SSSR, 1958. 305 p. (MIRA 11:5)
(Artificial satellites)

SOV/24-59-3-3/33

AUTHORS: Bodner, V. A., Seleznev, V. P., Ovcharov, V. Ye. (Moscow)

TITLE: The Theory of Inertial Damped Systems of Arbitrary Period that are Invariant with Respect to Changes in the Object.

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr 3, pp 11-18 (USSR)

ABSTRACT: The paper deals with inertial guidance systems containing more than one feedback loop. Fig 1 shows the general system the authors envisage as moving at a constant speed at a fixed distance from the surface of a spherical earth; Eqs (1.1) are the equations of motion, and Fig 2 shows the corresponding structural diagram. The platform is assumed to rotate about the vertical at a speed related to the latitude ϕ and longitude λ by $(\omega_3 + \dot{\lambda}) \sin \phi$, where ω_3 is the angular velocity of the earth. Eq (1.2) is found by differentiating the first equation in (1.1). Then (1.3) gives the compensation condition (the condition that the system is invariant with respect to a perturbation (acceleration)). The result system is at the boundary between

Card 1/3

SOV/24-59-3-3/33

The Theory of Inertial Damped Systems of Arbitrary Period that are Invariant with Respect to Changes in the Object

stability and instability; damping may be introduced via the dotted unit shown in Fig 3, or via the unit K_3 (full line). Eqs (1.6) and (1.5) relate respectively to these two cases. However, both forms of damping cause the condition (1.3) to be violated. The next paragraphs (Eqs (1.7) to 1.10)) illustrate the point that, if such a system is used as an indicator of location in a closed-loop control system, the damping introduced by these internal feedbacks is lost and the larger system becomes unstable. The second major division of the paper deals with systems in which the information about the position of the object in terrestrial coordinates is supplied by some non-inertial system not specified; this latter information is also assumed to be very much more accurate than the information supplied by the inertial system. This topic is treated very cursorily. The third major division is concerned with the errors introduced by errors in the information supplied to the inertial system; the errors are assumed random, and the usual result is reached. The last section deals with the effects of the

Card 2/3

SOV/24-59-3-3/33

The Theory of In ertial Damped Systems of Arbitrary Period that are Invariant with Respect to Changes in the Object

finite speed of the object on the working of the inertial system, and it is shown that the system ceases to function properly when the escape velocity is approached. The paper contains 6 figures and 4 references, 3 of which are Soviet and 1 English.

SUBMITTED: February 18, 1959.

Card 3/3

16(1) SOV/20-125-5-8/61

AUTHORS: Bodner, V. A., Ovcharov, V. Ye., Seleznev, V. P.

TITLE: On the Synthesis of the Invariant Damped Inertial Systems With Arbitrary Period (O sinteze invariantnykh dempfirovannykh inertsial'nykh sistem s proizvol'nym periodom)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 5, pp 986-988 (USSR)

ABSTRACT: Reference is first made to several earlier papers dealing with this subject. The present paper describes a method for the synthesis of a damped inertial system with arbitrary period, which is invariant (with an accuracy up to ε) with respect to arbitrary external disturbances. On a platform which is free in the azimuth (and which moves within a constant distance from the center of the earth) two accelerometers, whose axes are perpendicular to each other, are assumed to be located. The axes are located in the plane that is perpendicular to the place vertical. First, the equations of the gyroplatform are written down, explained, and simplified. In this way

Card 1/4

$\ddot{\alpha} + \Omega_0^2 \alpha = 0$, $\beta + \Omega_0^2 \ddot{\beta} = 0$ is obtained. Here α and β denote the small angles of the deviation of the gyrovertical from the place vertical in the direction of the x-axis, and y-axis respectively, T - the period of M. Shuler, and it holds that $\Omega_0^2 = (2\pi/T)^2 = g/R$. The gyroplatform is, under the above-mentioned conditions, invariant with respect to any external disturbances, with the exception of the variations of the initial conditions. The instrumental errors of the system (which are equivalent to the external disturbances) are in this case not taken into account. The first integrals of the acceleration components are apparently the components of the velocity of the object (in consideration of the peripheral velocity of the earth). The second integrals are the components of the path covered. Consequently, the velocity vector and the position coordinates of the object can be determined. In the case of initial conditions different from zero, undamped oscillations, however, occur in the system. When determining α and β, and, consequently also the position

of the object, considerable errors are committed. Let an external discrete "information" concerning the velocity and the coordinates of the object be assumed to act upon the object. In this case the approximated values of the angles $\alpha \pm \Delta_1$ and $\beta \pm \Delta_2$ as well as of the angular velocities $\dot{\alpha} \pm \Delta_3$ and $\dot{\beta} \pm \Delta_4$ can be computed, where Δ_1, Δ_2, Δ_3 and Δ_4 denote the errors of angles and angular velocities due to the inaccuracy of the external information. These errors are limited with respect to the modulus and do not exceed small magnitudes of the order ε. In the general case, these errors Δ may be random functions of time. The equations of motion resulting from taking these errors into account are written down. For the construction of the invariant damped inertial systems with arbitrary period an external information is thus necessary, which may enter into the system discretely or continuously. In the case of a discrete entering of the information the pauses may be arbitrary. There are 2 figures and 3 Soviet references.

PRESENTED: November 13, 1958, by V. S. Kulebakin, Academician

69807

3,3400

S/024/60/000/01/009/028
E081/E335

AUTHORS: Bodner, V.A. and Seleznev, V.P. (Moscow)

TITLE: Theory of an Imperturbable System Having Three-coordinate Gravitational Compensation

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1960, Nr 1, pp 76-85 (USSR)

ABSTRACT: The paper deals with an inertial guidance system having a computer that inserts in each of the three accelerometer channels a signal corresponding to the gravitational acceleration that the accelerometer ought to register (but cannot). Much of the paper is concerned with transforming between coordinate systems (cartesian and spherical polar) and with the effects of errors in the initial settings of the gyroscopes (accelerometers) and in the gravity-compensation signals. It is assumed for this purpose that the vehicle is moving in the gravitational field of a single body (or equivalent single body). The characteristic equation is derived and it is shown that the system is unstable in all channels, even if the channels are not coupled; the calculated coordinates diverge steadily from the true ones and also

Card1/2

69807
S/024/60/000/01/009/028
E081/E335

Theory of an Imperturbable System Having Three-Coordinate Gravitational Compensation

oscillate about their mean values. The period of the oscillation is comparable with the period of a satellite describing a circular orbit about the gravitating body; the time-constant of the divergence is the time-constant of the motion of a vehicle moving with the escape velocity. Brief mention is made at various points of the need to correct such a system by means of external information, e.g. from sightings on fixed stars. There are 5 figures and 3 references, 2 of which are English and 1 Soviet.

SUBMITTED: August 27, 1950

Card 2/2

~~30042~~ 69642

S/024/60/000/02/011/031
E140/E135

3.3000

AUTHORS: Bodner, V.A., and Seleznev, V.P. (Moscow) 9

TITLE: The Theory of Errors in Space-Astronavigation

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1960, Nr 2, pp 73-82 (USSR)

ABSTRACT: Statement of the problem. It has been shown previously (Refs 1-3) that the position of a space vehicle may be determined by photoelectric servosystems to a precision of 10^{-4}, fully satisfactory for interplanetary travel. To determine the velocity of the space vehicle, however, an inertial system (Ref 4) is necessary. The errors of position determination are due not only to measurement errors, but also the errors of the epheremides of the heavenly bodies, errors in the measurement of time, and to the geometrical properties of the method. The term heavenly bodies is applied to all bodies within the Solar system (sun, planets).

1. Principles of interplanetary astronavigation. The basis of astronomical methods of interplanetary navigation is the use of position surfaces - the loci of the probable locations of the vehicle. Three position surfaces are necessary to determine the coordinates of a vehicle.

Card 1/5

~~66012~~ 69642

S/024/60/000/02/011/031
E140/E135

The Theory of Errors in Space-Astronavigation

A number of points may be obtained, one of which is the true position, and a knowledge of the approximate location permits selection of the true position. Photoelectric servosystems permit measurement of the following angular astronomical parameters: direction to the centres of heavenly bodies, the angles between these directions and the angles subtended by heavenly bodies. Measurement of the angle subtended by the apparent diameter of a heavenly body gives a surface of equal diameters (Eq 1.1). Measurement of the angle between the direction to a star and the centre of a heavenly body gives a surface of equal angles (Eq 1.2). The surface of equal angles between the centres of two heavenly bodies is a toroid (Eq 1.3).

2. Systematic errors of measurement of navigational elements. The absolute distances between heavenly bodies are known to within 10^{-4}. The photoelectric servosystem determines the centre of brightness, a function of the phase of the planet. This error increases with approach of the vehicle to the measured heavenly body. Measurement

Card 2/5

~~66042~~ 69642

S/024/60/000/02/011/031
E140/E135

The Theory of Errors in Space-Astronavigation

of the apparent diameter is connected with errors due to the surface characteristics of the heavenly body (atmosphere, deviations from spherical shape, corona, etc). In the measurement of stars errors are due to the aberration of light and the proper motion of the star. At a velocity of 100 km/sec the angular shift of the ray (Eq 2.1) may reach 1'. Using binary stars errors arise from the differing brightnesses. In the measurement of planets, the finite velocity of light is a cause of error. 3. Navigation method based on measurement of diameters of three heavenly bodies. In this method the error increases proportionally to the square of the distance from the heavenly body and decreases with use of bodies with larger diameters. There is a limiting distance from the measured heavenly body, dependent on the resolution of the photoelectric servosystem. The error increases without limit as the angles between the heavenly bodies tend to zero. The smallest error is obtained with the angles between the heavenly bodies mutually at 90°.

Card 3/5

~~66042~~ 69642

S/024/60/000/02/011/031
E140/E135

The Theory of Errors in Space-Astronavigation

4. Navigation method based on measurement of diameters of two heavenly bodies and the direction to a star. Again the errors increase without limit as the angles between the directions to the heavenly bodies tend to zero. These angles should be not less than 20 to 30°. The distances to the heavenly bodies should also not exceed the limiting values.

5. Navigation method based on measurement of the diameter of a heavenly body and the directions to two stars. Geometrically this method is identical with the well-known method of terrestrial navigation based on the measurement of the zenithal distances of two stars. This method is useful only in flight close to the heavenly body.

6. Navigation method based on measurement of the angles between the centres of three heavenly bodies. The minimum error is obtained with mutually perpendicular directions.

7. Comparison of the methods. In all navigation methods based on the measurement of heavenly bodies (planets) it is necessary to measure time and to know the epheremides

Card 4/5

~~66042~~ 69642

S/024/60/000/02/011/031
E140/E135

The Theory of Errors in Space-Astronavigation

of the planets. This may be achieved by the use of special clocks or the measurement of a fourth heavenly body with known epheremides. Each navigation method gives best results under certain conditions. For remote navigation it is convenient to employ methods based on measurement of angles between centres of three heavenly bodies or two heavenly bodies and a star. For close navigation including landing on the surface of a heavenly body the method based on measurement of angles between centres of the heavenly body and two stars and the apparent diameter of the body may be used. Since the choice of stars is very wide, the limitations of the method are easily eliminated. An example of a system for astronavigation is given in block diagram (Fig 9). The apparent diameter of a heavenly body is found by scanning its surface through a telescope. There are 9 figures, 1 table and 4 references, of which 3 are Soviet and 1 is English.

Card 5/5

SUBMITTED: September 24, 1959

80949

S/024/60/000/03/011/028
E140/E463

3.3000

AUTHORS: Bodner, V.A. and Selezner, V.P. (Moscow)

TITLE: On the Theory of Stable Systems with 3 Channels for Automatic Compensation of Gravitational Acceleration, Corrected by External Information

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1960, Nr 3, pp 84-95 (USSR)

ABSTRACT: The position and velocity coordinates required for the navigation of an object in space may be measured either by a hyperinertial (Ref 1) or astronomical (Ref 2) navigational system. The information obtained from the hyperinertial navigational system is very reliable concerning velocities but is subject to high positional errors while the astronavigational system permits measuring the coordinates to high accuracy but the information on velocities is subject to large error. The present work considers a combined system termed astroinertial with three automatic compensation channels. The information from the astronomical system is used not only to reduce error in coordinate measurement but also to control the dynamic properties of the inertial system (eliminate instability, introduced damping and reduction

Card 1/5

80949
S/024/60/000/03/011/028
E140/E463

On the Theory of Stable Systems with 3 Channels for Automatic Compensation of Gravitational Acceleration, Corrected by External Information

of period of oscillation). The astroinertial system includes photo-servosystems for tracking heavenly bodies or stars, a gyroscopic platform, 3 accelerometers with axes directed along the adopted coordinate system, integrators for calculating velocities and coordinates, calculators for generating acceleration compensation signals, for processing the telescope control signals and for calculating corrections to the coordinates given by the inertial system. The improvement of the dynamic properties mentioned is obtained by summing the feedback signals with the output signals of the accelerometers and first integrators. The equations of the astroinertial system are given and the errors of the automatic system for compensating gravitational acceleration are analysed. The stability of the compensation system is analysed with the assumption that the telescopes are exactly aimed and that the space vehicle is in a gravitational field. A theorem is

Card 2/5

80949
S/024/60/000/03/011/028
E140/E463

On the Theory of Stable Systems with 3 Channels for Automatic Compensation of Gravitational Acceleration, Corrected by External Information

presented giving the characteristic equation of the automatic compensation system for gravitational acceleration and stating that by choice of transfer factors in the feedback networks arbitrary frequency and attenuation of error may be obtained. The accumulation of error during periods in which the astronomical objects are not visible so that correction for the inertial system measurements cannot be carried out is then analysed. Sources of error in the system are: errors of astronomical measurements, errors in the assumed masses, dimensions and ephemerides of heavenly bodies, errors of the automatic compensation system, instrumental errors of the accelerometers, integrators, calculators, photo-servomechanisms, astrodomes etc. It is found that the critical element of the system is the astronomical measurement system. Two methods of employing the astronomical information are proposed. In the first, three surfaces of position (Ref 2) are obtained. This method suffers from

Card 3/5

4

80949
S/024/60/000/03/011/028
E140/E463

On the Theory of Stable Systems with 3 Channels for Automatic Compensation of Gravitational Acceleration, Corrected by External Information

restrictions in the choice of stars suitable as points of reference and the computer is complicated. In the second method, the directions to the stars are used only to eliminate angular deviation of the gyroplatform with respect to the inertial coordinate system. Here the possible choice of stars is wider and the computer is simpler. Numerical examples of the error to be expected from the system under various conditions of space navigation are considered. During periods when accumulated errors in position measurement are being reduced, errors may arise in velocity measurement. There are three types of operation of the astroinertial system: "memory" in the absence of visible heavenly bodies, during which error is continuously accumulated; forced elimination of error of position; normal operation, where the natural frequency of the system is close to the frequency of rotation of the space vehicle

Card 4/5

80949
S/024/60/000/03/011/028
E140/E453

On the Theory of Stable Systems with 3 Channels for Automatic Compensation of Gravitational Acceleration, Corrected by External Information

about the celestial body. There are 4 figures and 3 Soviet references.

SUBMITTED: October 1, 1959

4

Card 5/5

SELEZNEV, Vasiliy Petrovich; OL'MAN, Ye.V., inzh., retsenzent; BODNER, V.A., doktor tekhn.nauk, red.; GOTESMAN, Ye.V., kand. tekhn. nauk, red.; BOGOMOLOV, M.F., red. izd-va; ROZHIN, V.P., tekhn. red.

[Navigational instruments] Navigatsionnye ustroistva. Pod red. V.A.Bodnera. Moskva, Gos.nauchno-tekhn.izd-vo Oborongiz, 1961. 615 p. (MIRA 14:12)

(Navigation (Aeronautics)) (Electronics in aeronautics) (Aeronautical instruments)

25753
S/024/61/000/001/007/014
E061/E128

13,2500

AUTHORS: Bodner, V.A., and Seleznev, V.P. (Moscow)

TITLE: A Contribution to the Theory of Inertial Systems Without a Gyroscopically Stabilized Platform

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.1, pp. 143-152

TEXT: This is a continuation of previous work by the authors (Ref.1), "A contribution to the theory of undisturbable systems with three channels of self-compensation of accelerations for gravitational forces", this journal, 1960, No.1. In an inertial system with a stabilized platform accelerometers measure the accelerations of the system while the stabilized platform provides fixed axes of reference. In the inertial system without stabilized platform, which is considered, three accelerometers measure accelerations along the axes of the moving object. The measurements are affected by components due to gravity, and the rotation of the object. The effects of rotation are compensated by signals derived from instruments measuring rotational velocity. The effects of gravity are compensated by a feedback signal from a computer which

Card 1/3

25753
S/024/61/000/001/007/014
E061/E128

A Contribution to the Theory of Inertial Systems Without a Gyroscopically Stabilized Platform

calculates the necessary correction from the position of the object with respect to the celestial bodies affecting it. The position information is derived from the corrected accelerometer signals by double integration. The apparatus gives the position of the object in a moving system of coordinates. To obtain the position of the object in a fixed system of coordinates, information about the angular position of its axes is derived from the neasured rotational velocities of the system. This is fed to a computer which transforms the outputs of the accelerometers into measurements along fixed axes. The transformed accelerations are corrected for gravitational effects as described above. Two methods of measuring angular velocities by means of linear accelerometers are described. In each, two accelerometers are placed on each axis of the moving object; in one method the accelerometer axes are perpendicular and in the other parallel to the object axes. The angular velocities are derived from the differences between the accelerometer signals and from the

Card 2/3

25753
S/024/61/000/001/007/014
E061/E128

A Contribution to the Theory of Inertial Systems Without a Gyroscopically Stabilized Platform

distances between them. The stability of the systems of compensation of gravitational effects described is examined. It is shown that the apparatus is unstable; errors in the measurement of acceleration grow without limit. The system can be used for short measurements only. However, if an additional measurement of the position of the moving object with respect to the celestial bodies, obtained say by radar, is used to compensate the signal correcting the gravitational effects, the system is stable. Errors in measurement result in harmonic oscillations of limited amplitude.
There are 7 figures and 3 references: 2 Soviet and 1 English.

SUBMITTED: November 30, 1959

Card 3/3

27665

S/024/61/000/004/023/025
E140/E563

13,2000

AUTHORS: Bodner, V.A. and Seleznev, V.P. (Moscow)

TITLE: On the automatic control of the motion of a body in inertial space

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.4, pp.197-207

TEXT: The motion of a body in a gravitational field on the scale of interplanetary distances will be realised over pre-calculated orbits which are optimised in some sense. The minimum expense of energy is obtained by maximum utilisation of inertial motion, but at the same time minimum time is desired. This requires the use of motors controlled by a given program. In this study it is assumed that the body contains a navigational system in the form of an inertial system with three channels for the automatic compensation of gravitational acceleration. Changes in the vector applied to the body for purposes of controlling its motion are obtained by varying the rate of fuel consumption and by variation of the angle of attack of the motor. The coordinate system is taken as heliocentric. The equations of motion are derived in terms of the tractive force P, the gravitational force

Card 1/3

27655

On the automatic control of the ... S/024/61/000/004/023/025
E140/E563

G and the resistive force Q (due to incidence of the object in an atmosphere, the effects of meteoritic particles and of electrical and magnetic fields). The conditions for motion over a ballistic trajectory are found. The equations of motion of the automatic control system are then derived from a separate consideration of the equations of the object, the navigational system, the control signal generator, the computer, the amplifier and the motor, all included in the closed loop of the complete control system. The cases of small and large deviations are considered separately. The dynamic error of the system is neglected, which is justified by the consideration that the time constants of the system elements are much smaller than the durations of the processes involved in the control of the motion of the centre of gravity of a large mass. Two systems are considered - static and astatic. In the integral system the error can be made smaller. In the special case of motion around a planet there will be random variations of the forces acting on the object due to the presence of an atmosphere, with its varying density with height, with exposure to the sun's heat radiation and to variations in the solar activity. The dispersions of the errors in the coordinates of the above two systems are found

Card 2/3

as functions of the ratio of the system natural frequency to the frequency of revolution. The analysis indicates the advantage of having as high a natural period as possible, which can only be obtained in practice by increasing the acceleration due to the tractive force. The processes in the control system in the presence of large deviations are studied by the approximate method of statistical linearisation, and using a process of successive approximations. The dispersion is found to sufficient precision after about three or four computational cycles. The analysis shows that the static control system should have regulation with respect to the deviations and the first derivatives of the deviations, with the latter predominating, and, in the astatic system, an integral signal in addition. To reduce the reaction of the system to random forces its frequency should be made as great as possible, by increasing the slope of the traction characteristic and by increasing the traction reserves. The frequency of the control system should in any case exceed substantially the frequency of revolution about a planet. There are 8 figures and 9 Soviet references.

SUBMITTED: February 11, 1961

29566
S/024/61/000/005/008/009
E140/E135

13,2500 (1080)

AUTHORS: Bodner, V. A. and Selezney, V. P. (Moscow)

TITLE: On the theory of inertial reference systems

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Energetika i avtomatika, no.5, 1961, 163-173

TEXT: The authors apply Kulebakin's absolute invariance principle to the nongyroscopic inertial reference system proposed by J. J. Klein (Ref. 1: Nongyroscopic inertial reference. IRE Trans. Automat. Control, 1959, V.4, No.2). With reference to a single axis the basic system is shown in Fig. 1 and consists of an inertial body 2, which may rotate about the axis x - x. An accelerometer 1 is fixed to this axis with its axis of sensitivity perpendicular to the plane of the figure (the y-axis). At the opposite end of the x-axis the rotor of a drive motor 3 is fixed. The motor torque is derived from the accelerometer signal through a loop with transfer function F(p). A double integration gives the velocity $\dot{s}_y$ and the distance s_y when the control circuit is adjusted so that the inertial reference

Card 1/5

29566

On the theory of inertial reference.... S/024/61/000/005/008/009
E140/E135

system models a Schuler pendulum and can be used to obtain the local vertical. Analysis of the system errors shows that the suspensions of the inertial bodies must be carefully designed, the moment of inertia must be large and external navigational information should be introduced. The system must also be damped. Technologically feasible methods should permit the construction of such systems with precisions two orders of magnitude greater than are presently attainable with gyroscopic systems. The authors proceed to an analysis of the effects of introducing external information under the assumption that the error of a Doppler velocity meter is small in comparison with the errors due to the perturbation moment and the accelerometer. The introduction of external information has the effect of reducing the Schuler period by factors of 10 to 30. The external information thus has the effect of improving the dynamic characteristics and the precision. It may be applied either continuously or discontinuously depending on the required precision and the mode of operation [illegible] An improved design of a

29566

On the theory of inertial reference ... S/024/61/000/005/008/009
E140/E135

The inertial body is immersed in liquid enclosed in a container. The purpose of the liquid is to supply full compensation for the weight of the body and by this to eliminate the friction moment caused by the bearing reaction. A possible viscous friction of the body in the liquid is compensated. Elastic couplings are used to maintain the body in a definite position. Servosystems are employed to reduce the forces and moments acting on the body from the liquid and elastic couplings to negligibly small quantities. The body 1 is cylindrical for a single-axis system; in a three-system it is a sphere, with specific gravity equal to that of the liquid 2, in the container 3. The liquid viscosity should be low and its temperature maintained constant. The body is in a suspended state in the liquid and is fixed to the container by thin quartz filaments 8 which may twist. The container is connected to the object through ball bearings 9 whose axis of rotation corresponds to the axis of rotation of the inertial body. The difference angle between the body and the container is measured by a special frictionless detector 7 - either photoelectric or capacitive - from which signals are obtained for the compensation motor 6 serving to eliminate

Card 3/5

29566

On the theory of inertial reference S/024/61/000/005/008/009
E140/E135

moments acting on the body and a corrective motor 5 placed between the container and the body of the object. This results in the body, container and the object being decoupled from each other. A linear accelerometer 4 with axis of sensitivity perpendicular to the axis of the container is fixed to the container. Its output signal is also applied to the motors and is also integrated to determine the velocity and coordinates of the object. The accelerometer signals are also applied to an electromagnet 10 through an amplifier. The magnetic field of this element interacts with electric currents passed through the liquid from the electrodes 11 to establish a force on the liquid acting to correct viscous friction between the liquid and the body. The analysis of the system takes into account second-order effects neglected in Klein's original work, and develops conditions for compensation of the object acceleration, the unbalance, elastic support and viscous friction moments. The compensation conditions derived are valid for fixed altitude of flight. The effects of altitude variations on the compensation conditions must be corrected by means beyond the scope of the article.

Card 4/6

29566

On the theory of inertial reference ... S/024/61/000/005/008/009
E140/E135

There are 7 figures and 2 references: 1 Soviet-bloc and 1 non-Soviet-bloc. The English language reference reads:

Ref.1: J.J. Klein. Nongyroscopic inertial reference. IRE Trans. Automat. control. 1959, V.4, No.2.

SUBMITTED: March 21, 1961

Card 5/5

S/020/61/138/005/006/025
B104/B205

13.2500

AUTHORS: Bodner, V. A., and Seleznev, V. P.

TITLE: Behavior of unperturbed systems in an inertial space

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 138, no. 5, 1961
1043-1046

TEXT: Unperturbed systems in the three-dimensional space, which are used as navigation systems, are equipped with three accelerometers which are fastened to a gyroscopic stabilizer and are oriented along the three axes of the inertial system. The behavior of a navigation system of this kind in a three-dimensional inertial space is illustrated in Fig. 1. F and G are the vectors of the external forces and of the attractive force, respectively. The accelerometers measure the components of acceleration a_{xo}, a_{yo} and a_{zo}. On account of the deviation of the axes of the gyroscope from the sensitive axes of the accelerometer forming the orthogonal system, xyz, $x_o y_o z_o$ and xyz are not parallel. On the assumption that the angles α, β and γ (Fig. 2) are small, the following relations will hold for the

Card 1/7

signals of the three accelerometers: $a_x = a_{xo} + \Delta a_{xd}$, $a_y = a_{yo} + \Delta a_{yd}$, and $a_z = a_{zo} + \Delta a_{zd}$ (2), where $\Delta a_{xd} = a_{yo}\beta - a_{zo}\alpha$, $\Delta a_{yd} = a_{zo}\gamma - a_{xo}\beta$, and $\Delta a_{zd} = a_{xo}\alpha - a_{yo}\gamma$. In order to obtain an inertial system with three compensation channels for gravitational acceleration, it is necessary to form the compensation signals g_{xk}, g_{yk}, and g_{zk} whose amounts are equal to those of the components g_x, g_y and g_z of gravitational acceleration. Their signs, however, are reverse. Fig. 3 shows the block diagram of a system of this kind, from which the equation of motion

$$\left[(a_x - g_{xk})\frac{1}{p} + x_0'\right]\frac{1}{p} + x_0 = s_x, \quad \left[(a_y - g_{yk})\frac{1}{p} + y_0'\right]\frac{1}{p} + y_0 = s_y,$$
$$\left[(a_z - g_{zk})\frac{1}{p} + z_0'\right]\frac{1}{p} + z_0 = s_z, \qquad (3)$$

for the system is obtained. The symbols with the subscript o are the initial coordinates and velocities of the object; s_x, s_y, and s_z are the

running coordinates of the object as given in the inertial system; $p=d/dt$. By means of (2) this equation can be represented in the form $\Delta x''=\Delta g_x+\Delta a_{xd}$, ..., $\Delta z''=\Delta g_z+\Delta a_{zd}$ (4), where $\Delta x=s_x-x$ denotes the error of the inertial system, which holds analogously for Δy and Δz, and $\Delta g_x=g_x-g_{xk}$, which holds analogously for Δg_y and Δg_z. Using the known expressions

$$g_x=\sum_{i=1}^{n} fm_i\frac{x-x_i}{R_i^3},\quad g_y=\sum_{i=1}^{n} fm_i\frac{y-y_i}{R_i^3},\quad g_z=\sum_{i=1}^{n} fm_i\frac{z-z_i}{R_i^3},\qquad (6)$$

где where

$$R_i=\sqrt{(x-x_i)^2+(y-y_i)^2+(z-z_i)^2},\qquad (7)$$

the following relations are easily obtained for (4)

$$(p^2+\eta_x^2)\,\Delta x-A\Delta y-B\Delta z=\Delta a_{xr},\quad -A\Delta x+(p^2+\eta_y^2)\,\Delta y-C\Delta z=\Delta a_{yr},$$
$$-B\Delta x-C\Delta y+(p^2+\eta_z^2)\,\Delta z=\Delta a_{zr},\qquad (9)$$

where

$$\eta_x^2 = \sum_{i=1}^{n} \frac{fm_i}{R_i^3}\left[1 - 3\left(\frac{x - x_i}{R_i}\right)^2\right], \quad \eta_y^2 = \sum_{i=1}^{n} \frac{fm_i}{R_i^3}\left[1 - 3\left(\frac{y - y_i}{R_i}\right)^2\right], \tag{10}$$

$$\eta_z^2 = \sum_{i=1}^{n} \frac{fm_i}{R_i^3}\left[1 - 3\left(\frac{z - z_i}{R_i}\right)^2\right]; \tag{10}$$

$$A = 3\sum_{i=1}^{n} \frac{fm_i}{R_i^3}\frac{(x - x_i)(y - y_i)}{R_i^2}, \quad B = 3\sum_{i=1}^{n} \frac{fm_i}{R_i^3}\frac{(x - x_i)(z - z_i)}{R_i^2},$$

$$C = 3\sum_{i=1}^{n} \frac{fm_i}{R_i^3}\frac{(y - y_i)(z - z_i)}{R_i^2}. \tag{11}$$

(11)

($a_{xn}=a_{xd}$, $a_{yn}=a_{yd}$, $a_{zn}=a_{xd}$). The error of the inertial system, which is caused by an inaccurate compensation of acceleration, can thus be determined from a linear system of differential equations having variable